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Design Of a Web Based Goods Damage Recapitulation Information System

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Keywords

Damage, Goods, Recapitulation, Information System, Web.

Abstract. Recapitulation of damage to goods at Madrasah Ibtidaiyah Negeri Buru still uses a manual method by utilizing Microsoft Excel as a tool. This process takes a long time and often occurs inaccurate recapitulation and loss of data. The information system for recapitulating damage to web-based goods can carry out the process of recapitulating damage to assets at Madrasah Ibtidaiyah Negeri Buru in an organized manner. The purpose of building this system is to speed up the admin work process in recapitulating damage to goods and minimizing the occurrence of unwanted things such as loss of data, repeated data (double), and data manipulation by irresponsible parties. The development model used uses a waterfall model. The method used in this research uses the prototyping method. The prototyping method contains a system design that is built using Data Flow Diagrams and Entity Relationship Diagrams. The data collection stages in this study used a process of interviews, observations, and document studies. The data used includes tables, chairs, cabinets, and whiteboards. The results of the research are in the form of an item damage recapitulation system based on determining qualifications that can be used efficiently. This system can only be accessed by the admin online. Data reports on the recapitulation of damage to goods can be downloaded with the .pdf extension.

1. INTRODUCTION

Education is a national institution that provides services related to science, skills, spirituality, and character to the nation's children. Based on Article 35 paragraph (1) of Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System which is further explained in Government Regulation Number 19 of 2005 concerning National Education Standards, namely content standards, process standards, graduate competency standards, educator and education personnel standards, facilities and infrastructure standards, management standards, financing standards, and educational assessment standards[1]. Educational standards that are equipped with competent educators and supporting agency facilities will improve the quality of education in an area and produce competent and characterized graduates. To achieve competent education standards cannot be separated from the role of the government to provide supporting facilities. That way, education in Indonesia can compete with education abroad.

Madrasah Ibtidaiyah Negeri Buru is a public Islamic school established in 1997 in Waekasar village, Waeapo sub-district, Buru district with a land area of 6,711 m2. In running its education system, Madrasah Ibtidaiyah Negeri Buru is under the auspices of the Ministry of Religious Affairs which serves the teaching of elementary school education in Buru district. Similar to other schools, Madrasah Ibtidaiyah Negeri Buru has school assets. An asset is something that has economic value and has exchange value in an organization or agency[2]. Assets that are used every day allow damage to occur[3]. It is not uncommon that within a year there are already several damaged assets. Damaged assets are still recorded by employees using manual methods, namely recording using paper[4].

Recording using manual methods takes a long time and does not guarantee that data will be stored securely[5]. Although the manual recording in question is using MS. Excel, but this method does not have a history of recording and has the possibility of experiencing double (repetitive) data[6]. In an organization or agency, a complaint system for damaged goods is very important so that all assets owned can be repaired[7].

As time goes by, technology develops rapidly so that many organizations or agencies carry out asset maintenance using web-based information systems[8]. Technology provides many conveniences to the company's managerial processes so that not a few companies or agencies in Indonesia, both public and private, use web technology as an alternative in completing work[9]. To improve the quality of schools located in eastern Indonesia, Madrasah Ibtidaiyah Negeri Buru utilizes technological developments. With the creation of an information system for recapitulating damage to goods, the admin can access the system and control the damage to school-owned goods to be reported

to superiors[10]. A report is the delivery of news or information in the form of oral or written information that has information and accountability and is generally submitted by subordinates to superiors[11]. Madrasah Ibtidaiyah Negeri Buru is a state school, so the assets of goods must be reported regularly to the center. Data on the recapitulation of damage to goods is then used as a report to be reported to the center regarding funding for damage to goods. In addition to being a recapitulation system, this system is made so that Madrasah Ibtidaiyah Negeri Buru is able to compete with other schools in Buru Regency.

This system was created to speed up the work of the admin in processing reports on the recapitulation of damage to school goods and minimize scattered documents[12]. As for the benefits of making this project to help improve the quality of school education and minimize the occurrence of non-transparency reports on asset goods in schools[13].

Based on the background description, there are several problem formulations which include:

1. How to implement a goods damage recapitulation information system?
2. What is the flow of the goods damage recapitulation information system?
3. What is the process of recapitulating damaged goods and handling them?
4. What is the impact on the school after the creation of the goods damage recapitulation information system?

This study aims to design a web-based goods damage recapitulation information system to speed up the work of the admin in processing reports on the recapitulation of damage to school goods and minimize the occurrence of scattered documents[14]. As for the benefits of making this project to help improve the quality of school education and minimize the occurrence of non-transparency reports on asset goods in schools.

2. METHOD

Data

The data collected were sourced from the school property assets of Madrasah Ibtidaityah Negeri Buru. The data was then analyzed and used as reference material for research. These data include tables, chairs, cabinets, and blackboards. Data analysis is based on the causes of asset damage which includes damage due to physical, chemical and biological factors.

Data Collection Methods and Testing Methods

The data collection method uses an interview process, observation, and document study. The interview process used was an unstructured interview. An unstructured interview is an interview that is addressed to the interviewee by not sticking to a systematic arrangement of questions. The questions given are relatively flexible according to what is needed by the researcher. The type of observation carried out is non-participant observation. Non-participant observation is an observation that does not involve researchers to be directly involved in the process of observing data. Document study or document collection which is then analyzed to be used as material in the research process.

The other types of data used are secondary data, internal data, qualitative data, and periodic data. Secondary data is that researchers do not need to look for data directly. Usually the data has been collected by certain parties such as journals, books, websites, and agency data records. Internal data describes data that occurs in accordance with the conditions and situation at the agency. Qualitative data cannot be measured in the form of numerical scale numbers and explains the data subjectively. Periodic data (time series data) within a certain period of time according to the conditions that occur.

To see whether the system built is feasible to use or not, the testing process is carried out. The system that has been built is then tested using black box testing. The research method used in this research is using the prototyping method, which is a technique used to design a system in the form of an initial description of the system to be developed. Some of the prototyping stages are needs analysis, design, system code generation, testing, implementation, and evaluation. Prototype uses Data Flow Diagram, which is the flow of a system that explains the course of interconnected computerized and manualized processes. While the Entity Relationship Diagram is a graphical database model that is interconnected between entities and arranged using certain notations and symbols to describe the

process of running a system. To see whether the system built is feasible to use or not, the testing process is carried out. The system that has been built is then tested using black box testing.

Research Stages

The research conducted uses a waterfall development model. The model used in this research has 5 stages:

1. Requirement analysis. Requirement analysis is needed to identify the needs of users on the system to be built.
2. Design. The process of designing a system based on user requirements information to get an overview of the system to be built.
3. Implementation and unit testing. System implementation is in the form of a coding process in the form of modules. System modules that have been built will be checked whether they are in accordance or not with system standards.
4. Integration and system testing. After the implementation process and module checking, then an overall check of the system that has been built is carried out whether there are errors or not in the system.
5. Maintenance. Systems that have been built and used by users must be maintained so that the system can run according to its function.

3. RESULTS AND DISCUSSION

Result

The results obtained from this research are a design of a web-based item damage recapitulation information system built using the prototype method. The running of the system begins with reports from teachers or staff about damage to goods which are then reported to the admin. Damage to goods that have been reported will be processed by the admin to be reported to the center. The admin will input data on damage to goods using an online goods damage recapitulation information system on the web. The data that has been inputted will form a recapitulation report automatically. Admin can print the report to be reported to the center.

The needs required in this research are functional needs and non-functional needs. Functional needs are needs that include how the system can provide services to users. Functional needs in this system design include user data and admin data. While non-functional needs are the limitations required by the system. Non-functional requirements in designing this system include software requirements (Windows 11 OS, VS Code, Apache, MySQL, Draw.io, Figma) and hardware requirements (Lenovo Idea-Pad Slim 3 laptop, intel core i5 processor, CPU @ 1.00GHz 1.19 GHz, 8 GB RAM, 512 GB SSD).

After the needs are met, then proceed to the prototyping process. This process is a temporary design of the system to be built using Data Flow Diagram and Entity Relationship Diagram.

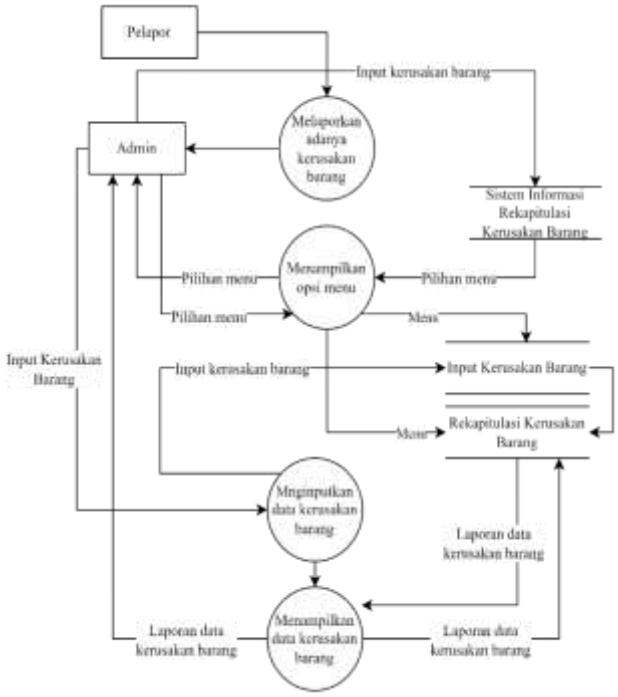

Figure 1: Data Flow Diagram

The Data Flow Diagram explains the flow of the information system for recapitulating damage to goods. Reporters report damage to goods to the admin. Admin will input reports of damage to goods through the system that has been built. On the dashboard, the system will display the main menu options. The menu includes input of damaged goods, recapitulation of damaged goods and exit. The goods damage input menu will display the goods damage input page. The item damage recapitulation menu will display item damage data that has been inputted previously on the item damage input page. The exit or logout menu is a menu for admins to exit the system.

Figure 2: Entity Relationship Diagram

Entity Relationship Diagram explains the process of running the system of recapitulating damage to goods between the set of entity relationships accompanied by variables in each entity. The admin entity has variables id_admin, password, email, nama_admin. The item damage input entity has variables nama_barang, kode_barang, jenis_kerusakan, dan tanggal_kerusakan. The entity

recapitulating damage to goods has variables tanggal_kerusakan, jenis_kerusakan, nama_barang, dan kode_barang. In this system, the admin inputs damage to goods then the data on damage to goods will be displayed on the item damage recapitulation menu.

The login page is the first step to enter a page that requires access rights in the form of admin data. Based on Figure 3, the login page contains the email and password of the previously registered admin.

Figure 3. Login Page

The register page is a page that serves to register the admin on the page that will be accessed to get access rights. Based on Figure 4, the login page contains the name, ID number, email, and password of the admin. If you successfully register, the admin will be directed to log in.

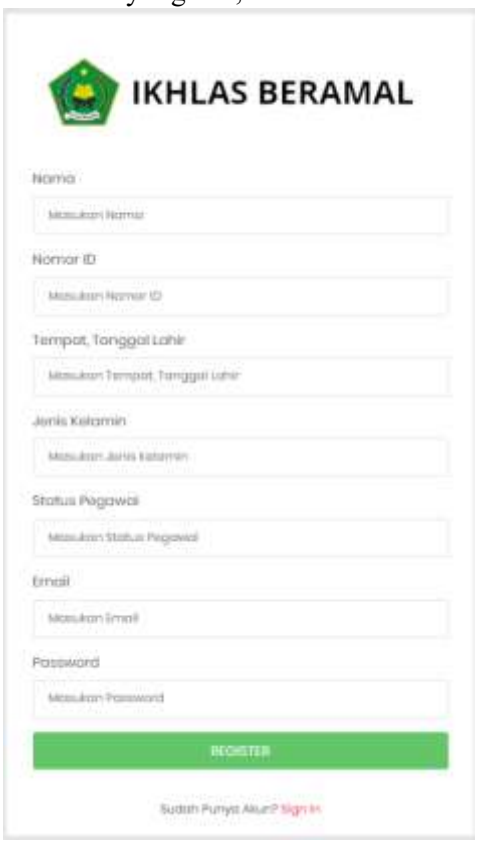

Figure 4. Register Page

Dashboard is the main page of a website. The appearance of the dashboard page varies according to the needs of the website. Based on Figure 5, the dashboard page on the system built displays a greeting sentence to the admin when he first enters the website.

Figure 5. Dashboard Page

The goods damage input page is a page for inputting data on damaged goods that will be reported to the central government. Based on Figure 6 of the system built, this page contains the date of damage, item code, item name, and type of damage to the damaged item.

Figure 6. Item Damage Input Page

Based on Figure 7, the goods damage recapitulation page is a page that displays data that has been inputted previously on the goods damage input page. On this page the admin can delete, edit, and download data.

Figure 7. Goods Damage Recapitulation Page

To see whether the system built is feasible to use or not, a testing process is carried out[15]. The system that has been built is then tested using black box testing. The test results that have been carried out can be seen in table 1 below:

Table 1. Black Box Testing

Transaksi		Nama					
		User 1	User 2	User 3	User 4	User 5	User 6
1.	Menu 1	✓	✓	✓	✓	✓	✓
2.	Menu 2	✓	✓	✓	✓	✓	✓
3.	Menu 3	✓	✓	✓	✓	✓	✓
4.	Menu 4	✓	✓	✓	✓	✓	✓
5.	Menu 5	✓	✓	✓	✓	✓	✓
6.	Menu 6	✓	✓	✓	✓	✓	✓
7.	Menu 7	✓	✓	✓	✓	✓	✓
8.	Menu 8	✓	✓	✓	✓	✓	✓

Menu 1 : Register
Menu 2 : Login
Menu 3 : Logout

Menu 4 : Dashboard
Menu 5 : Item damage input
Menu 6 : Recapitulation of item damage
Menu 7 : Admin profile
Menu 8 : Download

The test carried out contains 8 test activities. These activities include registering, logging in, logging out, dashboard, inputting damaged goods, recapitulating damaged goods, admin profiles, and downloading reports. The expected realization and description of the test results are listed in the table above. The results of the tests that have been carried out obtained the conclusion that of the 8 test activities all get valid results.

Discussion

The results obtained from this research are in the form of a web-based goods damage recapitulation information system built using the prototyping method. This system is designed to facilitate the admin in recapitulating reports of damage to goods to make it easier and more efficient while replacing the old system in the form of manual recording using Microsoft Excel. Damage to goods that have been reported to the admin will be processed through the information system before being reported to the central government to request repair of goods or new goods. Admin logs in to the system by entering the username and password that has been registered previously. On the input menu of damaged goods, the admin can input data on damaged goods which includes the date of damage, item code, item name, type of damage, admin name, and handling status of the item. To see the recapitulation of damage to goods can be seen on the recapitulation of damage to goods menu. If the admin wants to download the report, there is a download button below the recapitulation table.

4. CONCLUSION

The information system for recapitulating damage to goods can make it easier for admins to recapitulate reports on damage to goods more efficiently. Recording damage to goods is distinguished by the type of damage, namely minor damage, moderate damage, and severe damage. This information system can only carry out the process of recapitulating damage to goods and can only be accessed by admins who have carried out the previous registration process. The system was built using several main tools, namely Visual Studio Code, MySQL, HTML, PHP, CSS, and Boostrap. The information system built can only be accessed online. Reports that have been recapitulated in the system can be downloaded in the form of a .pdf extension.

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